

WHAT IS CLAIMED IS:

1. A method for forming a thin film comprising:
forming a diffusion barrier film on a substrate;
forming a metal seed layer on the diffusion barrier film;
5 removing a metal oxide film formed on a surface of the metal seed layer, using an electric plating method; and
depositing metal on the metal seed layer in which the metal oxide film is removed, using the electric plating method.

10 2. The method of claim 1, wherein the electric plating method includes the steps of:
arranging the substrate provided with the metal oxide film in a tub containing an electrolytic solution and applying a negative potential to the substrate to remove the metal oxide film; and
providing a deposition solution to the tub, and applying the negative potential to the
15 substrate to deposit a metal on the metal seed layer.

3. The method of claim 2, wherein the electric plating method is performed in such a manner that pH and potential of the electrolytic solution are controlled.

20 4. The method of claim 1, wherein the step of removing the metal oxide film and the step of depositing the metal are performed within different chambers in the tub.

5. The method of claim 2, wherein the electrolytic solution reduces the metal oxide film formed on the surface of the metal seed layer to a metal layer.

25 6. The method of claim 1, wherein the electric plating method is performed at a temperature of about 25~100°C.

7. The method of claim 1, wherein the electric plating method is performed within the range of current of about 10~100 μ A.

8. The method of claim 2, wherein the deposition solution contains a metal which is
5 the same as the metal of the metal seed layer and does not react with the electrolytic solution.

9. The method of claim 1, wherein the metal seed layer includes a metal to be deposited.

10. A method for forming a thin film comprising:
forming a diffusion barrier film on a substrate;
forming a copper seed layer on the diffusion barrier film;
removing a copper oxide film formed on a surface of the copper seed layer, using an
electric plating method; and
15 depositing copper on the copper seed layer from which the copper oxide film is removed, using the electric plating method.

11. The method of claim 10, wherein the electric plating method includes the steps of:
arranging the substrate provided with the copper oxide film in a tub containing an
20 electrolytic solution and applying a negative potential to the substrate to remove the copper oxide film; and
providing a deposition solution to the tub and applying the negative potential to the substrate to deposit copper on the copper seed layer.

12. The method of claim 11, wherein the electric plating method is performed in such
25 a manner that pH and potential of the electrolytic solution are controlled.

13. The method of claim 10, wherein the step of removing the copper oxide film and the step of depositing copper are performed within different chambers in the tub.

14. The method of claim 11, wherein the electrolytic solution reduces the copper oxide film formed on the surface of the copper seed layer to copper.

5 15. The method of claim 10, wherein the electrolytic an acid solution.

16. The method of claim 10, wherein the electrolytic solution is H_2SO_4 .

17. The method of claim 11, wherein the deposition solution is $CuSO_4$.

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18. The method of claim 10, wherein the electric plating method is performed at a temperature of about $25\sim 100^{\circ}C$.

15 19. The method of claim 10, wherein the electric plating method is performed within the range of current of about $10\sim 100\mu A$.

20. The method of claim 10, wherein the deposition solution includes a metal material containing copper.

20 21. A method for fabricating a liquid crystal display device comprising:
forming a first metal seed layer on a glass substrate;
depositing a first metal layer using an electric plating method;
patterning the first metal seed layer and the first metal layer to form a gate line and a gate electrode;
25 forming a gate insulating film on an entire surface including the gate line;
forming a semiconductor layer on the gate electrode;
forming a second metal seed layer on the entire surface including the semiconductor layer;
depositing a second metal layer using the electric plating method;

patterning the second metal seed layer and the second metal layer to form a data line crossing the gate line and source/drain electrodes on the semiconductor layer; and

forming a pixel electrode connected with the drain electrode, on a passivation film formed on the entire surface including the data line.

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22. The method of claim 21, wherein the electric plating method includes the steps of:

arranging the substrate provided with the first and second metal seed layers in a tub containing an electrolytic solution and applying a negative potential to the substrate to remove a metal oxide film on surfaces of the first and second metal seed layers; and

10 providing a deposition solution to the tub and applying the negative potential to the substrate to deposit a metal on the first and second metal seed layers.

23. The method of claim 22, wherein the electric plating method is performed in such a manner that pH and potential of the electrolytic solution are controlled.

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24. The method of claim 22, wherein the step of removing the metal oxide film and the step of depositing the metal are performed within different chambers in the tub.

25. The method of claim 22, wherein the electrolytic solution reduces the metal oxide
20 film formed on the surfaces of the first and second metal seed layers to metal layers.

26. The method of claim 22, wherein the electric plating method is performed at a temperature of about 25~100°C.

25 27. The method of claim 22, wherein the electric plating method is performed within the range of current of about 10~100μA.

28. The method of claim 22, wherein the deposition solution includes a metal which is the same as the metal of the first and second metal seed layer and does not react with the electrolytic solution.

5 29. The method of claim 21, further comprising the steps of forming another substrate to oppose the glass substrate and forming a liquid crystal between the two substrates.

10 30. The method of claim 21, wherein the first and second metal seed layers are formed of a metal material containing metal of the first and second metal layers.

31. The method of claim 21, wherein the first and second metal layers are formed of any one of Cu, Al, Cr, Mo, W, or an Al alloy.

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